

***Bulbophyllum pingnanense* (Orchidaceae, Epidendroideae, Dendrobiinae), a new species from Fujian, China**

Jiang-Feng Liu^{1,3}, Si-Ren Lan¹, Bi-Zhu He², Yi-Chi Liang¹

1 College of Landscape Architecture, Fujian Agriculture and Forestry University, Fuzhou 350002, China

2 College of Horticulture, Fujian Agriculture and Forestry University, Fuzhou 350002, China **3** Management Office of Yushan Scenic Area, Fuzhou 350001, China

Corresponding author: Yi-Chi Liang (fafulyc@126.com)

Academic editor: M. Simo-Droissart | Received 24 February 2016 | Accepted 9 June 2016 | Published 30 June 2016

Citation: Liu J-F, Lan S-R, He B-Z, Liang Y-C (2016) *Bulbophyllum pingnanense* (Orchidaceae, Epidendroideae, Dendrobiinae), a new species from Fujian, China. PhytoKeys 65: 107–112. doi: 10.3897/phytokeys.65.8254

Abstract

A new orchid species, *Bulbophyllum pingnanense*, is described and illustrated from Fujian, China. It is similar to *B. brevipedunculatum* and *B. albociliatum* in vegetative and floral morphology, but it can be distinguished from *B. brevipedunculatum* by having a longer dorsal sepal with longer white ciliate on margin, longer and lanceolate lateral sepals, and a glabrous lip. It can be distinguished from *B. albociliatum* by having a shorter inflorescence, and a longer dorsal sepal.

Keywords

Bulbophyllum, Eastern China, Fujian, Orchidaceae

Introduction

Bulbophyllum Thouars is one of the largest orchid genera. It includes more than 1900 species and extends widely from tropical America, Africa, Madagascar, and mainland Asia to Australasia (Lindley 1830, Pearce and Cribb 2002, Seidenfaden 1979, 1992, Chen et al. 2009, Pridgeon et al. 2014). There are about 105 species of *Bulbophyllum* in China, according to the most recent revision and recently published new species (Chen et al. 2009, Jin et al. 2014, Hu et al. 2015). Section *Cirrhopetalum* (Lindley) Reichenbach is characterized by sub-umbellate inflorescence, shorter dorsal than lateral sepals, twisting

and connected lateral sepals, and hairy dorsal sepal and petals (Seidenfaden 1979). *Cirrhopetalum* includes 57 species, 17 (10 endemic) of which are found in China (Chen et al. 2009). During fieldwork in Pingnan County, northeastern Fujian, a new species of *Bulbophyllum*, best placed under the section *Cirrhopetalum*, was found and described below.

Materials and methods

Gross morphological data were obtained during fieldwork. Measurements, shapes, colours and other details given in the description were based on living material. The images of flowering plant were photographed with the Canon S100v digital camera. The floral anatomy was conducted under a XTL-340Z stereomicroscope.

Taxonomy

***Bulbophyllum pingnanense* J.F. Liu, S.R. Lan & Y.C. Liang, sp. nov.**

urn:lsid:ipni.org:names:77155742-1

Figs 1, 2

Type. China. Fujian: Pingnan County, Shuangxi Town, on rock along Yuanyan River, 800–900 m, 27°01'N, 119°05'E, 23 June 2013, J.F. Liu 201312 (holotype: FAFU!; isotype: NOCC!).

Diagnosis. *Bulbophyllum pingnanense* is similar to *B. brevipedunculatum* T.C. Hsu & S.W. Chung and *B. albociliatum* (T.S. Liu & H.Y. Su) K. Nackejima. It differs from *B. brevipedunculatum* by having a longer dorsal sepal with either an obtuse or an acute apex and longer white ciliate on margins; longer and lanceolate lateral sepals; and glabrous lip. It can be distinguished from *B. albociliatum* by its shorter inflorescence, a longer dorsal sepal with either an obtuse or an acute apex.

Description. Epiphytic herb. Rhizome creeping, slender, 0.6–1 mm in diam. Pseudobulbs 0.6–2.5 cm apart on rhizome, obovate-elliptic, 0.5–1.7 cm, 3–6 mm in diam., with a terminal leaf. Leaf sessile; blade oblong to linear-oblong, 1.8–6.6 × 0.6–1.2 cm, apex obtuse to retuse. Scape arising from base of pseudobulb, ca. 1.1 cm, umbel 3–5 flowered; peduncle slender, ca. 0.6 mm in diam., with 3 or 4 sheaths; floral bracts triangular, 2–3 mm. Pedicel and ovary ca. 4 mm. Flowers orange red. Dorsal sepal concave, ovate, abaxially papillose, ca. 5 × 3 mm, margins long white ciliate, apex obtuse or acute; lateral sepals lanceolate, abaxially papillose, 10–12 × ca. 2 mm, slightly twisted near the base, with their upper and lower edges often loosely adhering, margins glabrous, apex acute. Petals ovate, 2.7–3.0 × 1.2–2.0 mm, margins long white ciliate, apex rounded. Lip recurved, ovate-triangular, ca. 3 mm, abaxially deeply grooved, base attached to end of column foot by a mobile joint. Column yellow, subterete, ca. 1–2 mm, with a distinct foot, ca. 1.0–2.5 mm, conspicuously winged; stelidia triangular, slender; anther cap subglobose; pollinia 4, in 2 pairs, without appendages.

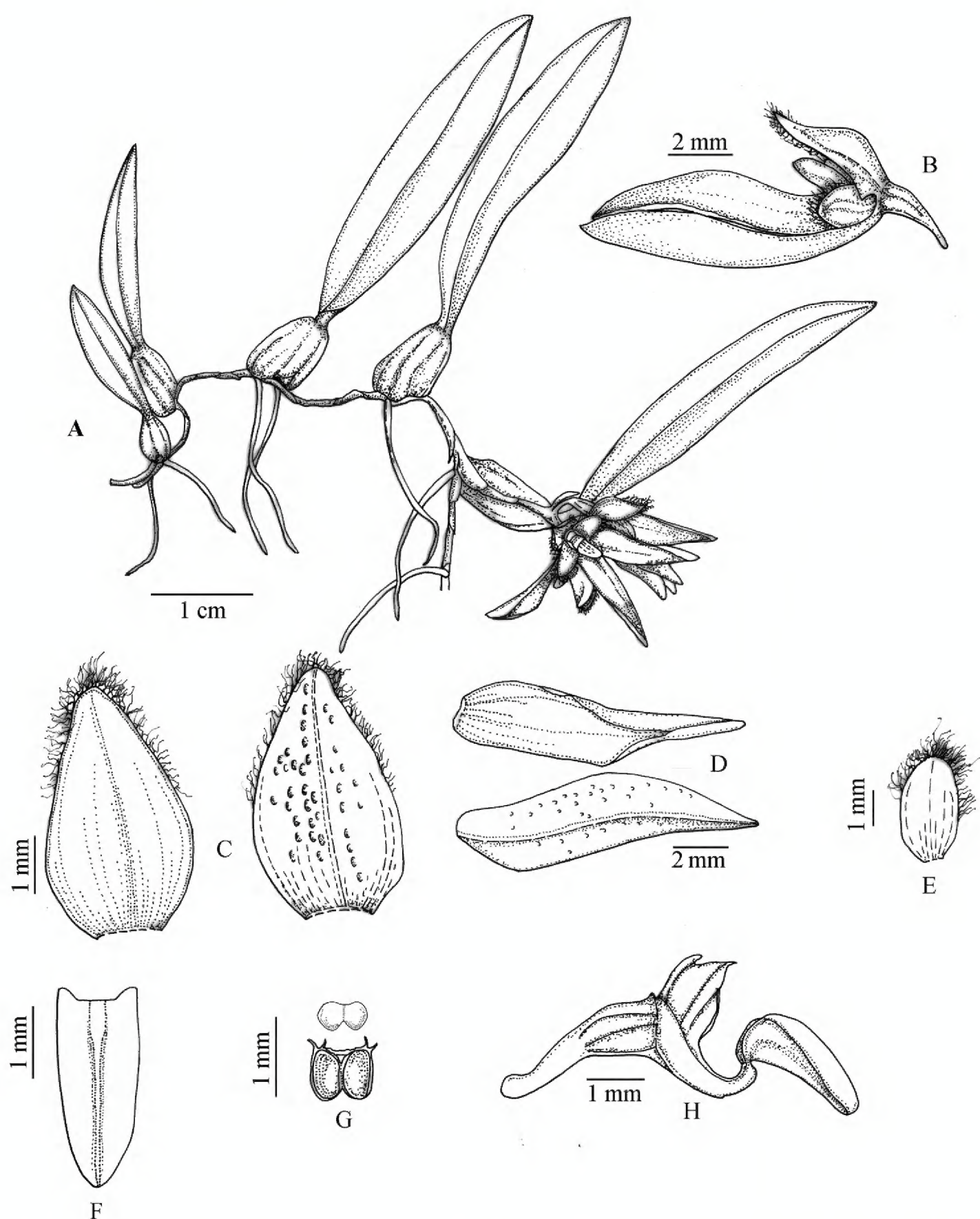


Figure 1. *Bulbophyllum pingnanense* sp. nov. **A** plant **B** flower **C** dorsal sepal **D** lateral sepal **E** petal **F** lip **G** pollinia and anther cap **H** lip, column, pedicel and ovary, side view (Drawn from the holotype by Bi-Dan Lai).

Distribution and habitat. *Bulbophyllum pingnanense* is so far only known within Pingnan, Fujian, China (Fig. 3). It is epiphytic on steep rock in the edge of evergreen coniferous and broad-leaved mixed forest, which is mainly composed of *Castanopsis eyrei* (Champ. ex Benth.) Hutch. (Fagaceae), *Cunninghamia lanceolata* (Lamb.) Hook. (Taxodiaceae). Other orchids, *Amitostigma gracile* (Bl.) Schltr., *Pholidota cantonensis* Rolfe, *Cymbidium floribundum* Lindl. and *Pleione formosana* Hayata, were found growing nearby this new species.

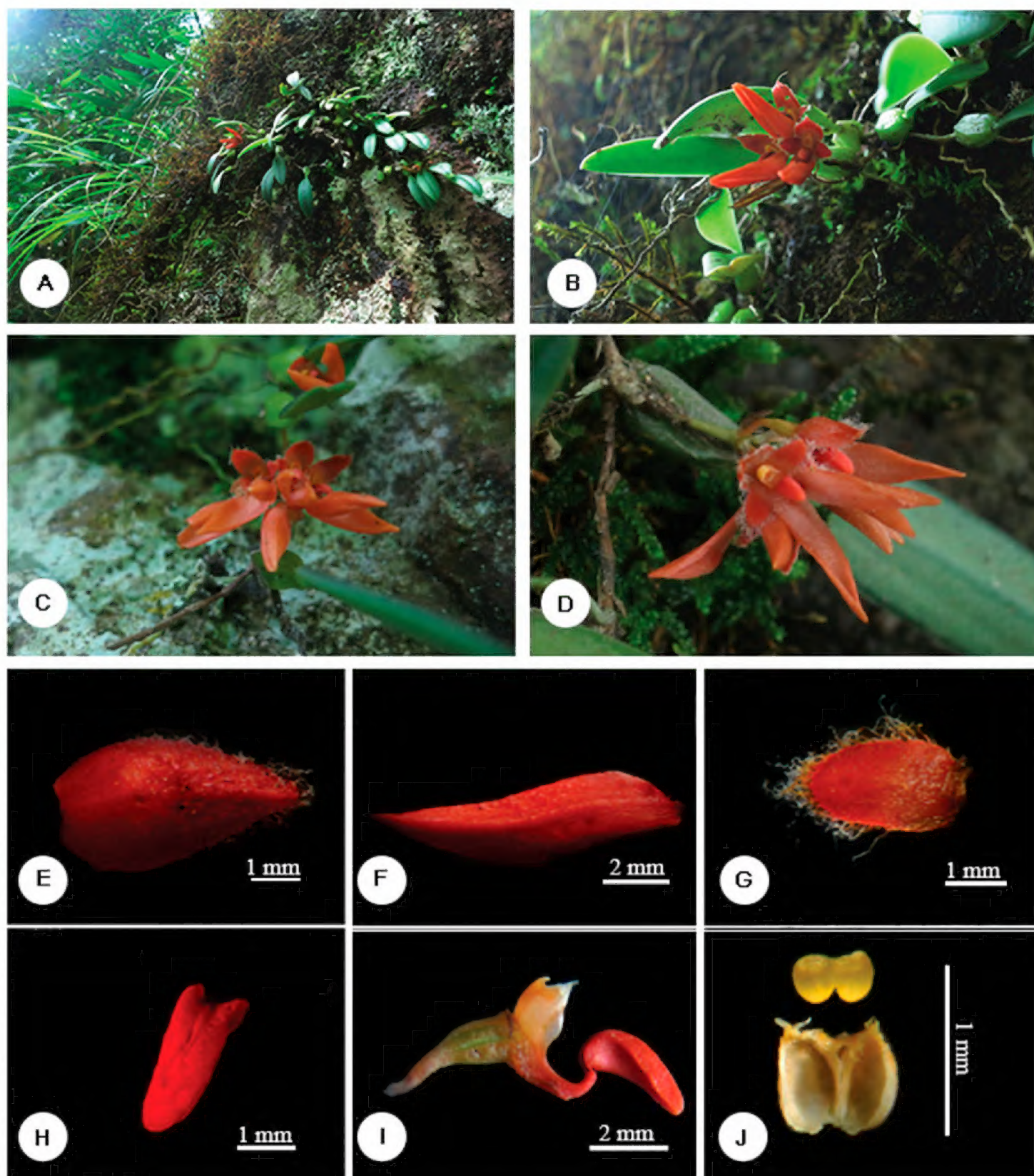


Figure 2. *Bulbophyllum pingnanense* J.F. Liu, S.R. Lan & Y.C. Liang. **A** habitat and habit **B–D** flower **E** dorsal sepal **F** lateral sepal **G** petal **H** lip **I** lip, column, pedicel and ovary, side view **J** pollinia and anther cap.

Phenology. Flowering from June to July.

Conservation status. *Bulbophyllum pingnanense* is known only from the type locality, and only one population of ca. 3000 individual plants was discovered in a small area of ca. 0.002 km² during two years of botanical surveys. Based on the extent of occurrence estimated to be less than 100 km² (CR B1) and the area of occupancy less than 10 km² (CR B2), species existing at a single location (CR B1a + B2a), *B. pingnanense* is assigned a preliminary status of Critically Endangered (CR B1a + B2a) according to the IUCN

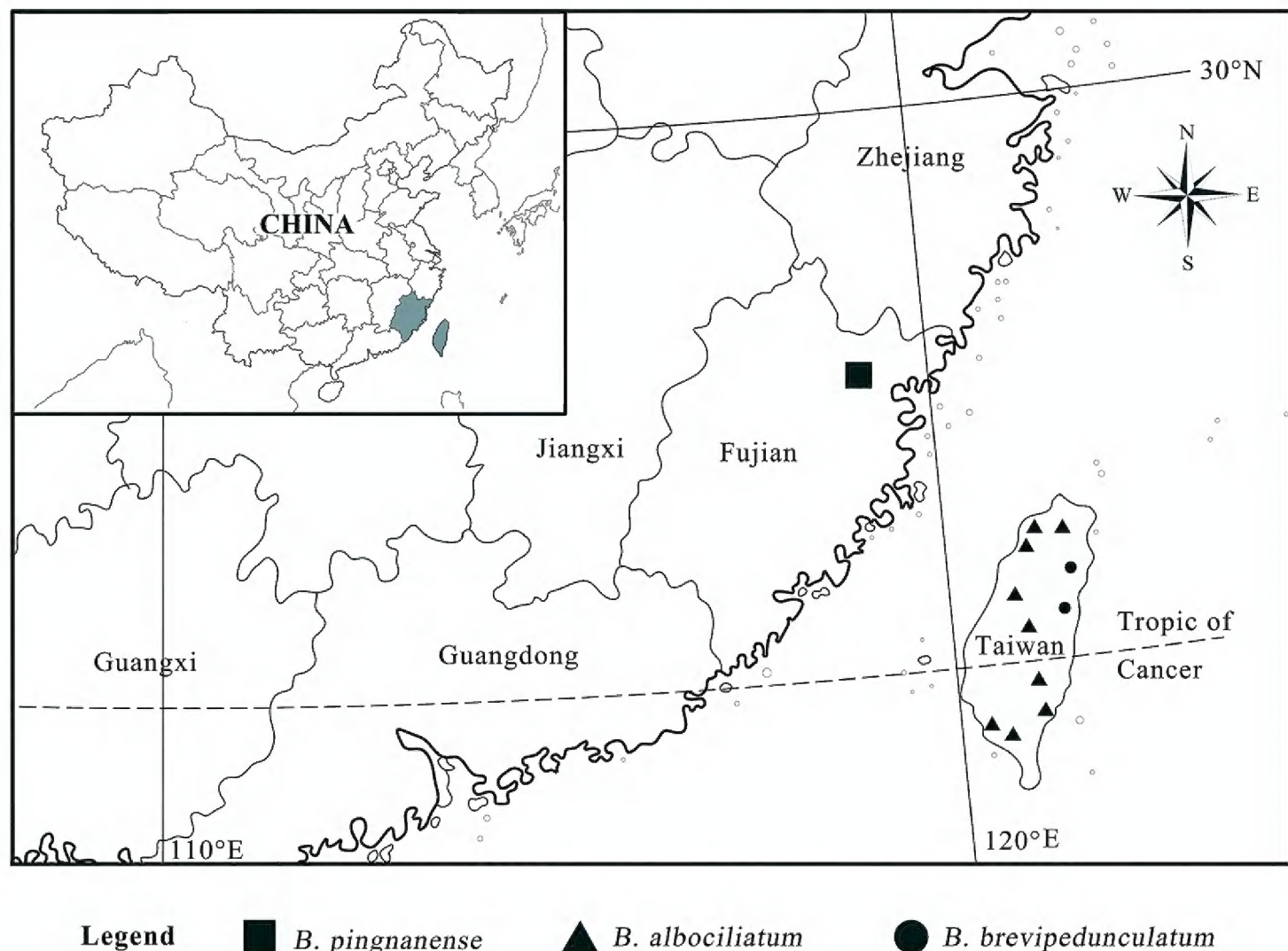


Figure 3. Distribution of *Bulbophyllum pingnanense*, *B. brevipedunculatum* and *B. albociliatum*.

Categories and Criteria (IUCN 2012). In addition, the plants of *Bulbophyllum* are used as herbal medicine in the locality. It is possible that *B. pingnanense* might also be collected for using as herbal medicine. Therefore, immediate conservation strategy should be taken.

Etymology. The species epithet refers to Pingnan County where this new species was found.

Taxonomic notes. Several morphological characters, such as the dorsal sepal being much shorter than the lateral sepals, and the lateral sepals twisting and connected, indicate that this species belongs to sect. *Cirrhopetalum*. *Bulbophyllum pingnanense* is closely related to *B. brevipedunculatum*, but it can be distinguished by having a longer (ca. 5 mm vs. ca. 3.5 mm) dorsal sepal with either an obtuse or an acute (vs. rounded) apex and longer white ciliate (vs. short white ciliate) on margins, longer (10–12 mm vs. 5–7 mm) and lanceolate (vs. near rectangular) lateral sepals, glabrous (vs. adaxially papillose) lip. In addition, the two species had different flowering seasons that never overlapped (June–July vs. March–April), and the nearest distance between them is ca. 370 km, separated by the sea (Fig. 3). The new species is also closely related to *B. albociliatum*, but it can be distinguished by having a shorter (ca. 1.1 cm vs. 4–6 cm) inflorescence, and a longer (ca. 5 mm vs. 3–4 mm) dorsal sepal with either an obtuse or an acute (vs. rounded) apex; the nearest distance between the two species is ca. 350 km, separated by the sea (Fig. 3).

Key to the related species of *Bulbophyllum pingnanense*

- 1 Scape ca. as long as pseudobulb **2**
- Scape much longer than pseudobulb..... **4**
- 2 Lateral sepals near rectangular, 5–7 mm long, ca. 2 × as long as dorsal sepal
or shorter ***B. brevipedunculatum***
- Lateral sepals narrowly oblong or lanceolate, ca. 10 mm long, ca. 2 × as long
as dorsal sepal or longer **3**
- 3 Scape ca. 4 mm, sepals yellow, lip triangular-lanceolate ***B. henanense***
- Scape ca. 11 mm, sepals orange red, lip ovate-triangular ***B. pingnanense***
- 4 Adaxial surface of lip glabrous, lateral sepals 0.7–1.1 cm..... ***B. albociliatum***
- Adaxial surface of lip partly papillose, lateral sepals 1.2–1.4 cm ... ***B. kuanwuense***

Acknowledgements

We would like to thank Ms Bi-Dan Lai for the line drawing, Xiaohua Jin and Shihwen Chung for helpful comments on the manuscript. This work was financially supported through grants from the Innovation and Industrialization Projects of Seedling of Fujian Province (Grant No. 2014S1477-7).

References

- Chen XQ, Liu ZJ, Zhu GH, Lang KY, Ji ZH, Luo YB, Jin XH, Cribb PJ, Wood JJ, Gale SW (2009) Orchidaceae. In: Wu ZG, Raven PH, Hong DY (Eds) *Flora of China*. Science Press, Beijing, Missouri Botanical Garden Press, St. Louis, 404–440.
- Hu YM, Zhang JJ, Jin XH (2015) *Bulbophyllum huangshanense* sp. nov. (Orchidaceae) from Anhui, China. *Nordic Journal of Botany* 33: 443–445. doi: 10.1111/njb.00680
- IUCN (2012) IUCN Red List Categories and Criteria, Version 3.1. 2nd Ed., IUCN, Gland.
- Jin WT, Shi XC, Jin XH (2014) *Bulbophyllum nujiangense* (Bulbophyllinae, Epidendroideae, Orchidaceae), a new species from Yunnan, China. *Plant Diversity and Resources* 36: 157–160. doi: 10.7677/ynzwyj201413115
- Lindley J (1830) *The Genera and Species of Orchidaceous Plants*. Part 1. Malaxideae. Ridgways, London 94. doi: 10.5962/bhl.title.499
- Pearce NR, Cribb PJ (2002) *The Orchids of Bhutan*. Royal Botanic Garden Edinburgh & Royal Government of Bhutan, 643.
- Pridgeon AM, Cribb PJ, Chase MW, Rasmussen FN (2014) *Genera Orchidacearum*, volume 6: Epidendroideae Part 3. Oxford University Press, Oxford, 4–51.
- Seidenfaden G (1979) Orchid genera in Thailand. VIII. *Bulbophyllum* Thou. *Dansk Botanisk Arkiv* 33: 7–223.
- Seidenfaden G (1992) The orchids of Indochina. *Opera Botanica* 114: 448–450.